



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,859	06/27/2006	Per Johan Anders Nystrom	P19103-US1	1377
27045	7590	07/21/2010	EXAMINER	
ERICSSON INC. 6300 LEGACY DRIVE M/S EVR 1-C-11 PLANO, TX 75024			JAMA, ISAAK R	
			ART UNIT	PAPER NUMBER
			2617	
			NOTIFICATION DATE	DELIVERY MODE
			07/21/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

kara.coffman@ericsson.com
jennifer.hardin@ericsson.com
melissa.rhea@ericsson.com

Office Action Summary	Application No. 10/596,859	Applicant(s) NYSTROM ET AL.	
	Examiner ISAAK R. JAMA	Art Unit 2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 14-26 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 14-20 and 22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 7,039,001 (Krishnan et al.) in view of U.S. Patent Application Publication Number 2003/0169681 (Li et al.).
4. Regarding claims 14, and 23-25, Krishnan teaches a method, system, base station and a mobile station in a multicarrier wireless telecommunication system for radio communication between base stations and mobile user stations **[Title]**, comprising the step of: detecting a presence of an acquisition channel by a mobile station for mobile station search purposes; transmitting information signals over the detected acquisition channel **[Columns 1 and 2, lines 62-67 and lines 1-3; i.e. Pilot transmission represents overhead in the OFDM system. Thus, it is desirable to minimize pilot transmission to the extent possible. However, because of noise and other artifacts in the wireless channel, a sufficient amount of pilot needs to**

Art Unit: 2617

be transmitted in order for the receiver to obtain a reasonably accurate estimate of the channel response. Moreover, the pilot transmissions need to be repeated to account for variations in the channel over time due to fading and changes in the multipath constituents], relating to size and location of operational bands of the radio spectrum used by the system; wherein the information signals comprise information of the bandwidth, and location, in the spectrum of the operational bands as part of the information in one or more sub carriers of the bands [Figures 5, column 11, lines 22-40; i.e. FIG. 5 illustrates an embodiment of an OFDM subband structure 500 that supports subband multiplexing. In this embodiment, the M usable subbands are initially divided into S disjoint sets, with each set including Q consecutive subbands, where $QS \geq M$. The Q subbands in each set are assigned to the Q groups such that the i -th subband in each set is assigned to the i -th group. The S subbands in each group would then be uniformly distributed across the M usable subbands such that consecutive subbands in the group are separated by Q subbands. The M usable subbands may also be distributed to the Q groups in some other manners. The Q groups of subbands may be assigned to up to Q terminals for uplink pilot transmission. Each terminal would then transmit a pilot only on its S assigned subbands. With subband multiplexing, up to Q terminals may simultaneously transmit pilots on the uplink on up to M usable subbands. This can greatly reduce the amount of overhead needed for uplink pilot transmission]. But Krishnan does not specifically teach the location in the spectrum of the operational bands. Li teaches a multi-carrier communications with

Art Unit: 2617

group-based subscriber allocation **[Title]**, whereby the base station selects one or more clusters (i.e. a group of sub-channels) for each subscriber and then notifies the subscriber regarding cluster allocation **[Figure 1B, steps 104 & 105, see also page 3, paragraph 0043]**, in addition, Li teaches that the base station transmits to the subscriber pilot symbols that occupies the entire OFDM frequency bandwidth and showing the used (shaded) and unused (un-shaded) clusters in different cells **[Figures 2A-C, page 5, paragraph 0064]**. Therefore, it would have been obvious to a person of ordinary skill in the art to include the multi-carrier communications with group-based subscriber allocation of Li in the method and apparatus of Krishnan in order for the base station to inform the mobile station of the available sub-channels.

4. Regarding claims 15 and 17, Krishnan further teaches that the location information is explicitly signaled or implicitly derivable from synchronization signals, and that the size information is repeated regularly in subsequent carriers, or sub-carriers, of the operational band **[Figure 5, showing the M-usable bands of the bandwidth, and their sizes F , $F+Q$, $F+2Q$, $F+3Q...$]**.

5. Regarding claims 16 and 26, Krishnan further teaches that the signaling is received by the mobile user stations which detect the information about available blocks of the spectrum and stores it into a memory **[At terminal 750, the downlink modulated signal is received by antenna 752 and provided to a receiver unit (RCVR) 754. Receiver unit 754 conditions (e.g., filters, amplifies, and frequency downconverts) the received signal and digitizes the conditioned signal to provide samples. An OFDM demodulator 756 then removes the cyclic prefix appended to**

Art Unit: 2617

each OFDM symbol, transforms each recovered transformed symbol using an FFT, and demodulates the recovered modulation symbols to provide demodulated data. An RX data processor 758 then decodes the demodulated data to recover the transmitted traffic data. The processing by OFDM demodulator 756 and RX data processor 758 is complementary to that performed by OFDM modulator 720 and TX data processor 710, respectively, at access point 700. OFDM demodulator 756 may further determine the initial channel frequency response estimate \hat{H} or provide the received pilot symbols that may be used]

6. Regarding claim 18, Krishnan further teaches that the information comprises the start and stop frequencies of the band and, thereby, the bandwidth **[Figure 5, see for example set 1, first Q subband and the clear marking of where the bandwidth of that subband start and where it ends].**

7. Regarding claim 19, Krishnan further teaches that the information comprises an identifying number representing the size and location of available operational bands **[[Figure 5, #s F, F+Q, F+2Q, F+3Q, F+SQ, F+M-1].**

8. Regarding claim 20, Krishnan further teaches that the mobile user stations repeatedly scan the information signaling for updating its memory about changing conditions relating to the operational bands **[Columns 1 and 2, lines 62-67 and lines 1-3; i.e. Pilot transmission represents overhead in the OFDM system. Thus, it is desirable to minimize pilot transmission to the extent possible. However, because of noise and other artifacts in the wireless channel, a sufficient amount of pilot**

needs to be transmitted in order for the receiver to obtain a reasonably accurate estimate of the channel response. Moreover, the pilot transmissions need to be repeated to account for variations in the channel over time due to fading and changes in the multipath constituents].

9. Regarding claim 22, Li further teaches a mobile user station requests access to a multicarrier band with N carriers **[Figure 1A]** for downloading information, comprising the steps of: the mobile station searching the radio interface for an N-carrier band by looking for location and size information; the communication system assigning a free band with N+ ϵ carriers to the mobile upon the request where ϵ is zero or a small number compared to N; and, the mobile station downloads the information **[page 3, paragraph 0040; i.e. N= 512 sub-carriers, and ϵ being zero]**.

10. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over over U.S. Patent Number 7,039,001 (Krishnan et al.) in view of U.S. Patent Application Publication Number 2003/0169681 (Li et al.) and further in view of U.S. Patent Number 6,650,655 (Alvesalo et al.).

11. Regarding claim 21, Krishnan and Li has been discussed above in regard to claim 14, but Li fails to teach that the operational bands belong to different network operators and wherein the subscribers of an operator may partly or wholly have access to the operational bands of another operator. Alvesalo teaches a system and method for allocating transmission resources between different networks where the available bandwidth is shared among the different networks **[Figure 2, column 11, lines 29-34]**. Therefore, it would have been obvious to a person of ordinary skill in the art at the time

Art Unit: 2617

the invention was made to include the resource allocation system of Alvesalo in the combined systems of Krishnan and Li in order for the mobiles in the system to have a seamless communication.

Conclusion

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to whose telephone number is (571)270-5887. The examiner can normally be reached on Monday-Thursday; 4-10.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester G. Kincaid can be reached on (571) 272-7922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2617

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/IRJ/

/LESTER KINCAID/
Supervisory Patent Examiner, Art Unit 2617